

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of:
Dettinger et al

Serial No.: 10/718,218

Confirmation No.: 9017

For: NATURAL LANGUAGE
SUPPORT FOR DATABASE
APPLICATIONS

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Filed: November 20, 2003

Group Art Unit: 2166

Examiner: Khanh B. Pham

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
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September 20, 2007
Date

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APPEAL BRIEF

Applicants submit this Appeal Brief to the Board of Patent Appeals and Interferences on appeal from the decision of the Examiner of Group Art Unit 2166 dated March 20, 2007, finally rejecting claims 1 and 3-41. The final rejection of claims 1 and 3-41 is appealed. This Appeal Brief is believed to be timely since it is transmitted by the due date of September 20, 2007, as set by the filing of a Notice of Appeal on July 20, 2007.

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Real Party in Interest

The present application has been assigned to International Business Machines Corporation, Armonk, New York.

Related Appeals and Interferences

Applicant asserts that no other appeals or interferences are known to the Applicant, the Applicant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1 and 3-41 are pending in the application. Claims 1-41 were originally presented in the application. Claim 2 has been canceled without prejudice. Claims 1 and 3-41 stand finally rejected as discussed below. The final rejections of claims 1 and 3-41 are appealed. The pending claims are shown in the attached Claims Appendix.

Status of Amendments

All claim amendments have been entered by the Examiner, including amendments to the claims proposed after the final rejection.

Summary of Claimed Subject Matter

Claimed embodiments include methods (see claims 1 and 3-19), computer programs stored on computer readable storage media (see claims 20-38), and computer systems (see claims 39-41) directed to providing natural language support in a database. More specifically, a data abstraction model is provided that comprises a plurality of logical fields abstractly describing physical data residing in the database, and which is associated with a language resource component defining a natural language expression for each of the plurality of logical fields. See *Application*, page 6, lines 8-18; *Abstract*. In one embodiment, natural language support is provided by a natural language support manager including a natural language resource component. The natural language resource component provides translation information for a data abstraction model. The translation information describes translations of each of the plurality of logical fields from a first natural language expression (as may be defined in the data abstraction model) to a second natural language expression. See *Application*, page 6, lines 12-18. For a description of the physical environment of the invention, see *Application*, p. 7-10, for a description of the software environment of the invention, see *Application*, p. 16-19 and p. 20-27, and for a description of methods for providing natural language support in a database, see *Application*, p. 18-20 and p. 27-34.

A. CLAIM 1 - INDEPENDENT

A method of providing natural language support for users running queries against a database. See *Application*, page 2, lines 13-23. As claimed, the method includes providing a data abstraction model comprising a plurality of logical fields abstractly describing physical data residing in the database. See *Application*, page 27, lines 1-5; FIG.6; FIG. 7. The method also includes associating the data abstraction model with a language resource component defining a natural language expression for each of the plurality of logical fields. See *Application*, page 28, lines 20-23; FIG. 7. The method also includes creating an effective data abstraction model by modifying the data abstraction model in accordance with a view that reflects one or more security settings for a group of users. See *Application*, page 20, line 20 – page 21, line 2; FIG. 6; page

34, lines 1-6. The method also includes displaying the effective data abstraction model to a user of the group of users. See *Application*, page 10, lines 21-24; page 22, lines 7-16.

B. CLAIM 6 - INDEPENDENT

A method of providing natural language support for users running queries against a database. See *Application*, page 2, line 24 – page 3, line 2. As claimed, the method includes providing a data abstraction model comprising a plurality of logical fields abstractly describing physical data residing in the database. See *Application*, page 27, lines 1-5; FIG. 6; FIG. 7. The method also includes providing translation information for the data abstraction model describing translations of each of the plurality of logical fields from a first natural language expression to two or more second natural language expressions. See *Application*, page 20, line 17 – page 22, line 6; FIG. 6. The method also includes displaying one of the second natural language expressions to a user based on which natural language expression files are loaded to define a language resource component associated with the data abstraction model. See *Application*, page 22, lines 6-16; FIG. 6.

C. CLAIM 17 - INDEPENDENT

A method of providing natural language support for users running queries against a database. See *Application*, page 3, lines 3-9. As claimed, the method includes retrieving an abstract query comprising a plurality of logical fields, each corresponding to a logical field specification of a data abstraction model abstractly describing physical data residing in the database. See *Application*, page 18, line 5 – page 19, line 17; FIG. 4; page 33, line 28 – page 34, line 1; FIG. 10. The method also includes determining, from the data abstraction model, an associated language resource component. See *Application*, page 34, lines 6-10; FIG. 10. The method also includes determining, from the associated language resource component, at least two natural language expressions for the plurality of logical fields of the abstract query. See *Application*, page 28, line 25 – page 30, line 8; FIG. 8. The method also includes displaying the abstract query in one of the at least two determined natural language expressions to a user,

wherein the natural language expression displayed is determined by a security setting of the user. See *Application*, page 20, line 17 – page 22, line 6; FIG.6.

D. CLAIM 20 - INDEPENDENT

A computer readable medium containing a program which, when executed, performs an operation. See *Application*, page 3, lines 10-16. As claimed, the program contained in the computer readable medium includes generating a data abstraction model comprising a plurality of logical fields abstractly describing physical data residing in the database. See *Application*, page 27, lines 1-5; FIG.6; FIG. 7. The program contained in the computer readable medium also includes associating the data abstraction model with a language resource component defining a natural language expression for each of the plurality of logical fields. See *Application*, page 28, lines 20-23; FIG. 7. The program contained in the computer readable medium also includes creating an effective data abstraction model by modifying the data abstraction model in accordance with a view that reflects one or more security settings for a group of users. See *Application*, page 20, line 20 – page 21, line 2; FIG. 6; page 34, lines 1-6. The program contained in the computer readable medium also includes displaying the effective data abstraction model to a user of the group of users. See *Application*, page 10, lines 21-24; page 22, lines 7-16.

E. CLAIM 25 - INDEPENDENT

A computer readable medium containing a program which, when executed, performs an operation. See *Application*, page 2, line 24 – page 3, line 2. As claimed, the program contained in the computer readable medium includes retrieving a data abstraction model comprising a plurality of logical fields abstractly describing physical data residing in the database. See *Application*, page 27, lines 1-5; FIG. 6; FIG. 7. The program contained in the computer readable medium also includes retrieving translation information for the data abstraction model describing translations of logical fields from a first natural language expression to a second natural language expression. See *Application*, page 20, line 17 – page 22, line 6; FIG.6. The program contained in the computer readable medium also includes creating an effective data abstraction model

by modifying the data abstraction model in accordance with the translation information and a view that reflects settings for a group of users. See *Application*, page 20, line 17 – page 22, line 6; FIG.6. The program contained in the computer readable medium also includes displaying the effective data abstraction model to a user based on security settings. See *Application*, page 22, lines 6-16; FIG. 6.

F. CLAIM 36 - INDEPENDENT

A computer readable medium containing a program which, when executed, performs an operation. See *Application*, page 3, lines 3-9. As claimed, the program contained in the computer readable medium includes retrieving an abstract query comprising a plurality of logical fields, each corresponding to a logical field specification of a data abstraction model abstractly describing physical data residing in the database. See *Application*, page 18, line 5 – page 19, line 17; FIG. 4; page 33, line 28 – page 34, line 1; FIG. 10. The program contained in the computer readable medium also includes determining, from the data abstraction model, an associated language resource component. See *Application*, page 34, lines 6-10; FIG. 10. The program contained in the computer readable medium also includes determining, from the associated language resource component, at least two natural language expressions for the plurality of logical fields of the abstract query. See *Application*, page 28, line 25 – page 30, line 8; FIG. 8. The program contained in the computer readable medium also includes displaying the abstract query in one of the at least two determined natural language expressions to a user, wherein the natural language expression displayed is determined by a security setting of the user. See *Application*, page 20, line 17 – page 22, line 6; FIG.6.

G. CLAIM 39 - INDEPENDENT

A computer system comprising a database having data, and a natural language component residing in memory for providing natural language support for users running queries against the data of the database. See *Application*, page 4, lines 7-14. As claimed, the natural language component is configured for retrieving a data abstraction model comprising a plurality of logical fields abstractly describing physical data residing

in the database. See *Application*, page 27, lines 1-5; FIG.6; FIG. 7. The natural language component is also configured for associating the data abstraction model with a language resource component defining a natural language expression for each of the plurality of logical fields. See *Application*, page 28, lines 20-23; FIG. 7. The natural language component is also configured for creating an effective data abstraction model by modifying the data abstraction model in accordance with a view that reflects one or more security settings for a group of users. See *Application*, page 20, line 20 – page 21, line 2; FIG. 6; page 34, lines 1-6. The natural language component is also configured for displaying the effective data abstraction model to a user of the group of users. See *Application*, page 10, lines 21-24; page 22, lines 7-16.

H. CLAIM 40 - INDEPENDENT

A computer system comprising a database having data, and a natural language component residing in memory for providing natural language support for users running queries against the data of the database. See *Application*, page 4, lines 15-22. As claimed, the natural language component is configured for retrieving a data abstraction model comprising a plurality of logical fields abstractly describing physical data residing in the database. See *Application*, page 27, lines 1-5; FIG. 6; FIG. 7. The natural language component is also configured for retrieving translation information for the data abstraction model describing translations of logical fields from a first natural language expression to a second natural language expression. See *Application*, page 20, line 17 – page 22, line 6; FIG.6. The natural language component is also configured for creating an effective data abstraction model by modifying the data abstraction model in accordance with the translation information and a view that reflects settings for a group of users. See *Application*, page 20, line 17 – page 22, line 6; FIG.6. The natural language component is also configured for displaying the effective data abstraction model to a user based on security settings. See *Application*, page 22, lines 6-16; FIG. 6.

I. CLAIM 41 - INDEPENDENT

A computer system comprising a database having data, and a natural language component residing in memory for providing natural language support for users running queries against the data of the database. See *Application*, page 4, line 23 – page 5, line 4. As claimed, the natural language component is configured for retrieving an abstract query comprising a plurality of logical fields, each corresponding to a logical field specification of a data abstraction model abstractly describing physical data residing in the database. See *Application*, page 18, line 5 – page 19, line 17; FIG. 4; page 33, line 28 – page 34, line 1; FIG. 10. The natural language component is also configured for determining, from the data abstraction model, an associated language resource component. See *Application*, page 34, lines 6-10; FIG. 10. The natural language component is also configured for determining, from the associated language resource component, at least two natural language expressions for the plurality of logical fields of the abstract query. See *Application*, page 28, line 25 – page 30, line 8; FIG. 8. The natural language component is also configured for displaying the abstract query in one of the at least two determined natural language expressions to a user, wherein the natural language expression displayed is determined by a security setting of the user. See *Application*, page 20, line 17 – page 22, line 6; FIG. 6.

Grounds of Rejection to be Reviewed on Appeal

1. Rejection of claims 1, 2-4, 6-8, 10-19, 20-23, 25-27 and 29-41 under 35 U.S.C. § 102(e) as being anticipated by *Kawakura et al.* (U.S. Publication 2004/0034521, hereinafter *Kawakura*).
2. Rejection of claims 5, 9, 24 and 28 under 35 U.S.C. § 103(a) as being unpatentable over *Kawakura* as applied to claims above, and in view of *Inanoria* (U.S. Publication 2004/0046789, hereinafter *Inanoria*).

ARGUMENTS

1. Claims 1, 2-4, 6-8, 10-19, 20-23, 25-27 and 29-41 are not anticipated by *Kawakura* under 35 U.S.C. § 102(e).

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Applicants respectfully submit that *Kawakura* does not disclose "each and every element as set forth in the claim." For example, with respect to claims 1, 20, 25, 39 and 40, *Kawakura* fails to teach "*creating an effective data abstraction model by modifying the data abstraction model in accordance with a view that reflects one or more security settings for a group of users,*" as recited in the claims. As described in paragraphs [0064-0067] of the present application, creating an effective data abstraction model based on a view, as claimed, allows different groups of users to view different translations (most appropriate for their need) and/or control what fields are presented to a group of users.

Regarding this element of claims 1, 20, 25, 39 and 40, the Examiner cites *Kawakura*, paragraphs [0179]-[0181]. The cited paragraphs state:

[0179] Furthermore, during user authentication, it is possible to designate a "language" for use in this session. More specifically speaking, the relay server 3 may open a dialog box for selecting a language to prompt to input a language. The language designation is associated with a request for user authentication and transmitted together to the relay

server 3 as the first identification information of a language code.

[0180] When receiving the request for user authentication as well as a language code, the relay server 3 extracts language-dependent data from the request data to transfer the remaining language-independent data to the server system 1.

[0181] At this time, the relay server 3 judges whether or not the language is supported with reference to the language code as received, and, if not supported, returns a response indicative of an error to the client system 2. If the language is supported by the relay server 3, the relay server 3 saves the language information in the session managing unit 39 together with the result of the user authentication and makes use of the language information to handle requests from the same user until log-out.

In summary, the cited paragraphs describe how an individual user may be presented with a “dialog box for selecting a language,” and how that language information may be stored “in the session managing unit 39 together with the result of the user authentication” in order “to handle requests from the same user until log-out.” The cited material, and *Kawakura* generally, does not teach creating any type of data model by modifying another data model. Further, *Kawakura* does not teach creating a data model according to “a view that reflects one or more security settings for a group of users,” as recited in the claims.

In the advisory action dated June 29, 2007, the Examiner asserts that *Kawakura* “teaches that language designation is associated with a request for user authentication, which comprises at least username and password.” Even assuming, *arguendo*, that *Kawakura*’s username and password can be considered “security settings”, *Kawakura*’s language designation is not based on the username and password, as asserted by the Examiner. *Kawakura* paragraph [0179] clearly states that the language designation is provided in “a dialog box for selecting a language to prompt to input a language.” The language specified in the dialog box is then “associated with a request for user authentication and transmitted together to the relay server 3.” Thus, the language

specification of *Kawakura* is not based on the user authentication, but is instead based on a user input in a dialog box.

With respect to claims 6, 17, 36, and 41, *Kawakura* fails to teach “*providing translation information for the data abstraction model describing translations of each of the plurality of logical fields from a first natural language expression to two or more second natural language expressions*” and “*displaying one of the second natural language expressions to a user, wherein which of the two or more second natural language expressions is displayed depends upon which natural language expression files are loaded to define a language resource component associated with the data abstraction model,*” as recited in the claims. As described, for example, in paragraphs [0063] of the present application, providing two or more natural language expressions and selecting one of those for display, as claimed, allows users to see different views of a data model, depending on which natural language files are loaded, allowing different translations to be displayed in different circumstances. The Examiner asserts that this element of claims 6, 17, 36 and 41 is disclosed by *Kawakura*, paragraphs [0143], [0148]-[0149], which state:

[0143] When a user transmits request data for a service from the client system 2 to the relay server 3 while a language is designated, the client data receiving section 33 receives this request data and transfer it to the request data separating section 32. Since a language is designated by this user, a language code is transmitted to the relay server 3 as the first identification information.

[0148] Next, as illustrated in FIG. 9, the data generation section 37 receives the response data d2 from the server data receiving section 36, analyzes the request data d2 to obtain data d2' which is easily handled by internal processing and confirms data items to be translated in the other language with reference to the data list d8 indicative of items to be used in different languages. In this case, the language information, the hotel names and the event names are data items to be translated in the other language. Next, these data items to be translated in the other language are replaced by the replacement data d7 as received from the data processing section 34 to generate data d9. In accordance with the data list d8, the process as designated

of the language designation information (Language=ja) is "addition" so that language information is added to the original response data d2. The process as designated of other items, i.e., the hotel names and the event names is "replacement by multilingual data" so that the original English response data d2', i.e., "HOTEL Tokyo" and "Valentine Fair" is replaced by corresponding Japanese data. In this case, there is no corresponding Japanese data to the event "Winter Plan" so that the English data is used as it is. Next, the data d9 is created from data d9' in order to conform with the interface of the client system 2 and transferred to the client data transmitting section 38.

[0149] By this configuration, it is possible to replace the English response data d2' as output from the server system 1 in response to the request from the client system 2 by Japanese data d9 and output it to the client system 2.

In summary, the cited paragraphs describe how a "user transmits request data" that includes a "language code," and how then "data items to be translated in the other language are replaced by the replacement data." Thus, *Kawakura* teaches translating queries based on a user language code. However, the cited material, and *Kawakura* generally, does not teach that any translation displayed is dependent on which natural language expression files are loaded. Further, *Kawakura* does not teach the use of any kind of natural language files, as recited in the claims.

In the advisory action dated June 29, 2007, the Examiner states that *Kawakura* teaches that "language replacement data d7 ... are loaded in response to designated language." The Examiner also states "For example, Japanese replacement data file is loaded in response to language code 'ja'." Applicants respectfully submit that the Examiner's statement confirms that *Kawakura* teaches translation based on a language code designated by the user (i.e., language code "ja"). Thus, *Kawakura* does not teach that "which of the two or more second natural language expressions is displayed depends upon which natural language expression files are loaded," as recited in the present claims.

For these reasons, Applicants submit claims 1, 20, 25, 39, 40, 6, 17, 36 and 41, as well as their dependents, are allowable, and respectfully request withdrawal of this rejection.

2. Claims 5, 9, 24 and 28 are not unpatentable over Kawakura as applied to claims above, and in view of Inanoria, under 35 U.S.C. § 103(a).

The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See MPEP § 2142. To establish a *prima facie* case of obviousness three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one ordinary skill in the art to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP § 2143. The present rejection fails to establish at least the third criterion.

Claims 5, 9, 24 and 28 depend, directly or indirectly, on claims that are believed to be allowable, for reasons discussed above. Accordingly, Applicants submit these claims are also allowable and respectfully request withdrawal of this rejection.

CONCLUSION

The Examiner errs in finding that:

1. Claims 1, 2-4, 6-8, 10-19, 20-23, 25-27 and 29-41 are anticipated by *Kawakura*; and
2. Claims 5, 9, 24 and 28 are unpatentable over *Kawakura* in view of *Inanoria*.

Withdrawal of the rejections and allowance of all claims is respectfully requested.

Respectfully submitted, and
S-signed pursuant to 37 CFR 1.4,

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CLAIMS APPENDIX

1. (Previously Presented) A method of providing natural language support for users running queries against a database, comprising:

providing a data abstraction model comprising a plurality of logical fields abstractly describing physical data residing in the database;

associating the data abstraction model with a language resource component defining a natural language expression for each of the plurality of logical fields;

creating an effective data abstraction model by modifying the data abstraction model in accordance with a view that reflects one or more security settings for a group of users; and

displaying, to a user of the group of users, the effective data abstraction model.

2. (Canceled)

3. (Original) The method of claim 1, further comprising:

creating the language resource component for the data abstraction model, the creating comprising mapping a default value to each logical field of the plurality of logical fields.

4. (Original) The method of claim 1, wherein the associating comprises:

generating, in the data abstraction model, a reference to the language resource component to associate the data abstraction model with the language resource component.

5. (Previously Presented) The method of claim 4, wherein the associated language resource component is an XML Localization Interchange File Format resource.

6. (Previously Presented) A method of providing natural language support for users running queries against a database, comprising:

providing a data abstraction model comprising a plurality of logical fields abstractly describing physical data residing in the database;

providing translation information for the data abstraction model describing translations of each of the plurality of logical fields from a first natural language expression to two or more second natural language expressions; and

displaying one of the second natural language expressions to a user, wherein which of the two or more second natural language expressions is displayed depends upon which natural language expression files are loaded to define a language resource component associated with the data abstraction model.

7. (Original) The method of claim 6, wherein the first and second natural language expressions are two different languages.
8. (Original) The method of claim 6, wherein the first and second natural language expressions are two different variations on the same language.
9. (Previously Presented) The method of claim 6, wherein providing translation information comprises providing an XML Localization Interchange File Format resource.
10. (Original) The method of claim 6, wherein the data abstraction model further comprises a reference to at least a portion of the translation information.
11. (Original) The method of claim 10, wherein the referenced portion is a default file.
12. (Original) The method of claim 6, wherein providing translation information comprises successively loading language resource files, wherein each successive language resource file comprises translations of increasing specificity to replace relatively less specific translations of one or more previously loaded language resource files.
13. (Previously Presented) The method of claim 6, wherein the translation information further describes translations of each of the plurality of logical fields from the first natural language expression to a third natural language expression, and further comprising:

displaying, to a user, at least a portion of the data abstraction model using only one of the first natural language expression, one of the two or more second natural language expression and the third natural language expression.

14. (Original) The method of claim 13, wherein which language expression is used to display the portion of the data abstraction model is based on user parameters.

15. (Original) The method of claim 14, wherein the user parameters describe a context of the user.

16. (Original) The method of claim 6, further comprising:
retrieving an abstract query expressed in the first natural language expression;
translating the abstract query on the basis of the translation information to express the abstract query in the second natural language expression; and
displaying the abstract query expressed in the second natural language expression.

17. (Previously Presented) A method of providing natural language support for users running queries against a database, comprising:
retrieving an abstract query comprising a plurality of logical fields, each corresponding to a logical field specification of a data abstraction model abstractly describing physical data residing in the database;
determining, from the data abstraction model, an associated language resource component;
determining, from the associated language resource component, at least two natural language expressions for the plurality of logical fields of the abstract query; and
displaying the abstract query in one of the at least two determined natural language expressions to a user, wherein the natural language expression displayed is determined by a security setting of the user.

18. (Previously Presented) The method of claim 17, further comprising, prior to displaying the abstract query, translating the abstract query from another natural language expression in which the abstract query was initially written.

19. (Original) The method of claim 17 wherein the associated language resource component is a language resource file, the data abstraction model including a reference to the language resource file.

20. (Previously Presented) A computer-readable medium containing a program which, when executed by a processor, performs a process of providing natural language support for users running queries against a database, the process comprising:

generating a data abstraction model comprising a plurality of logical fields abstractly describing physical data residing in the database;

associating the data abstraction model with a language resource component defining a natural language expression for each of the plurality of logical fields;

creating an effective data abstraction model by modifying the data abstraction model in accordance with the a view that reflects one or more security settings for a group of users; and

displaying, to a user of the group of users, the effective data abstraction model.

21. (Original) The computer-readable medium of claim 20, wherein the process further comprises:

displaying, to a user, at least a portion of the data abstraction model in accordance with the natural language expression defined by the language resource component.

22. (Original) The computer-readable medium of claim 20, wherein the process further comprises:

creating the language resource component for the data abstraction model, the creating comprising mapping a default value to each logical field of the plurality of logical fields.

23. (Original) The computer-readable medium of claim 20, wherein the associating comprises:

generating, in the data abstraction model, a reference to the language resource component to associate the data abstraction model with the language resource component.

24. (Previously Presented) The computer-readable medium of claim 23, wherein the associated language resource component is an XML Localization Interchange File Format resource.

25. (Previously Presented) A computer-readable medium containing a program which, when executed by a processor, performs a process of providing natural language support for users running queries against a database, the process comprising:

retrieving a data abstraction model comprising a plurality of logical fields abstractly describing physical data residing in the database;

retrieving translation information for the data abstraction model describing translations of each of the plurality of logical fields from a first natural language expression to a second natural language expression;

creating an effective data abstraction model by modifying the data abstraction model in accordance with the translation information and a view that reflects one or more security settings for a group of users; and

displaying, to a user of the group of users, the effective data abstraction model.

26. (Original) The computer-readable medium of claim 25, wherein the first and second natural language expressions are two different languages.

27. (Original) The computer-readable medium of claim 25, wherein the first and second natural language expressions are two different variations on the same language.

28. (Previously Presented) The computer-readable medium of claim 25, wherein retrieving translation information comprises retrieving an XML Localization Interchange File Format resource.

29. (Original) The computer-readable medium of claim 25, wherein the data abstraction model further comprises a reference to at least a portion of the translation information.

30. (Original) The computer-readable medium of claim 29, wherein the referenced portion is a default file.

31. (Original) The computer-readable medium of claim 25, wherein retrieving translation information comprises successively loading language resource files, wherein each successive language resource file comprises translations of increasing specificity to replace relatively less specific translations of one or more previously loaded language resource files.

32. (Original) The computer-readable medium of claim 25, wherein the translation information further describes translations of each of the plurality of logical fields from the first natural language expression to a third natural language expression, and the process further comprising:

displaying, to a user, at least a portion of the data abstraction model using only one of the first natural language expression, the second natural language expression and the third natural language expression.

33. (Original) The computer-readable medium of claim 32, wherein which language expression is used to display the portion of the data abstraction model is based on user parameters.

34. (Original) The computer-readable medium of claim 33, wherein the user parameters describe a context of the user.

35. (Original) The computer-readable medium of claim 25, wherein the process further comprises:

retrieving an abstract query expressed in the first natural language expression;
translating the abstract query on the basis of the translation information to express the abstract query in the second natural language expression; and
displaying the abstract query expressed in the second natural language expression.

36. (Previously Presented) A computer-readable medium containing a program which, when executed by a processor, performs a process of providing natural language support for users running queries against a database, the process comprising:

retrieving an abstract query comprising a plurality of logical fields, each corresponding to a logical field specification of a data abstraction model abstractly describing physical data residing in the database;

determining, from the data abstraction model, an associated language resource component;

determining, from the associated language resource component, at least two natural language expressions for the plurality of logical fields of the abstract query; and

displaying the abstract query in one of the at least two determined natural language expressions to a user, wherein the natural language expression displayed is determined by a security setting of the user.

37. (Previously Presented) The computer-readable medium of claim 36, wherein the process further comprises, prior to displaying the abstract query, translating the abstract query from another natural language expression in which the abstract query was initially written.

38. (Original) The computer-readable medium of claim 36 wherein the associated language resource component is a language resource file, the data abstraction model including a reference to the language resource file.

39. (Previously Presented) A computer system, comprising:
a database having data; and
a natural language support manager residing in memory for providing natural language support for users running queries against the data of the database, the natural language support manager being configured for:

retrieving a data abstraction model comprising a plurality of logical fields abstractly describing physical data residing in the database;

associating the data abstraction model with a language resource component defining a natural language expression for each of the plurality of logical fields;

creating an effective data abstraction model by modifying the data abstraction model in accordance with the translation information and a view that reflects one or more security settings for a group of users; and

displaying, to a user of the group of users, the effective data abstraction model.

40. (Previously Presented) A computer system, comprising:

a database having data; and

a natural language support manager residing in memory for providing natural language support for users running queries against the data of the database, the natural language support manager being configured for:

retrieving a data abstraction model comprising a plurality of logical fields abstractly describing physical data residing in the database;

retrieving translation information for the data abstraction model describing translations of each of the plurality of logical fields from a first natural language expression to a second natural language expression;

creating an effective data abstraction model by modifying the data abstraction model in accordance with the translation information and a view that reflects one or more security settings for a group of users; and

displaying, to a user of the group of users, the effective data abstraction model.

41. (Previously Presented) A computer system, comprising:

a database having data; and

a natural language support manager residing in memory for providing natural language support for users running queries against the data of the database, the natural language support manager being configured for:

retrieving an abstract query comprising a plurality of logical fields, each corresponding to a logical field specification of a data abstraction model abstractly describing physical data residing in the database;

determining, from the data abstraction model, an associated language resource component;

determining, from the associated language resource component, at least two natural language expressions for the plurality of logical fields of the abstract query; and

displaying the abstract query in one of the at least two determined natural language expressions to a user, wherein the natural language expression displayed is determined by a security setting of the user.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.